

**Red Rock Canyon National Conservation Area
Environmental Education Program**

AMAZING ADAPTATIONS

Classroom Program

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Grade Third Life Science (3)2.2

Theme Desert animals have amazing ways of surviving in this harsh environment

Goal Students will explore adaptations to desert living and discuss how recent human impacts have placed some animals at risk because they are unable to adapt fast enough to recent changes

Objective The student will be able to:
Describe a physical/biological adaptation and a behavioral adaptation
Describe how adaptations help animals survive in their habitats
Describe three adaptations the desert tortoise uses to survive
List three impacts by man that desert animals may not be able to adapt to quickly enough.

Materials/ Supplies

Worksheet

Animal cards

Clip board

Paper cups for storing food items

Adaptations: spoons, chopsticks, forks, tweezers, clothespins,

Food categories: toothpicks, marbles, plastic beads of different sizes and shapes

Vocabulary

Adaptation- is a physical/biological (how something is made) or behavioral (how something acts) feature of a plant or animal that helps it survive in its habitat.

Reptile- an animal that is cold blooded and can not regulate its body temperature internally. It is dependent on the environment around it.

Camouflage- a plant or animals coloring or marking that allow them to blend it with their surroundings

Estivation - a deep sleep that some animals enter to escape the summer heat, a hot weather version of hibernation.

Background

An adaptation is a physical or behavioral feature of a plant or animal that helps it survive in its habitat. Adaptations can either develop over a very long time or reacting to a new situation. Desert animals have amazing ways of surviving in the desert. They have had thousands of years to adapt to high temperatures, little rain, lack of cover and strong winds. Humans also adapt to living in the desert by using behavioral adaptations.

Some desert residents that are well adapted for life in the desert, such as the desert tortoise, have not been able to adapt to recent man-made changes in their environment. When changes occur rapidly animals or plants may not be able to adapt quickly enough. The list below covers some reasons tortoises are considered an at risk species and are protected as a threatened species: illegal collecting, vandalism, disease URTD, release of captive torts, attacks by domestic and feral dogs, predation by ravens, urban growth- take away their homes, landfills and illegal dumping of hazardous materials, fire, livestock grazing, highways/roads and rail roads, off road recreation vehicle activities, mining, military activities.

Pre-Site Activity - Amazing Adaptations

Have students complete the worksheet describing at least one feature/adaptation that helps each animal survive in the desert.

Introduction to Desert Adaptations

Explain the term Adaptation. Does anyone know what this word means. Briefly describe the difference between a physical adaptation and a behavioral adaptation.

Activity - Shoe Tying Experiment

Have the students untie their shoes and then retie them. Then have them do it again without using their thumbs. Be on the lookout for cheaters! How many were able to retie their laces without using their thumbs? Explain that the opposable thumb is a physical adaptation.

Discussion of Human and Desert Animal Adaptations

What other adaptations do humans have? Explain that many human adaptations are behavioral rather than physical. Have the students list ways that humans adapt to living in the Mojave desert. Are we especially made for life in the desert? Do we have tough rough skin? Do we have a special way to store water, etc.

Using examples cover some desert animal adaptations. Desert bird, reptile, and mammal. Try and cover some general adaptations both physical and behavioral. Have them examine the mouth, body covering, feet, etc. How might these help the animals?

Activity: Adaptation Feeding Station Experiment

Some animals have specialized features for collecting/gathering food, (List some common desert animals and their adaptations). Through this experiment students will learn that different adaptations for feeding allow many animals to live in the same area. See attached worksheet.

Animal Adaptation Bingo

See attached worksheet and clue sheet..

Conclusion: All animals, including humans have both physical and behavioral adaptations. Because of these adaptations animals have certain niches that allow them to live and survive efficiently side by side.

Post-Site Activity

Create A Desert Animal: Students will design and create imaginary desert animals and write a report including descriptions of the animal's adaptations. Have the students describe what makes it difficult for plants and animals to survive in the desert? What adaptations would be good to have in order to survive here? Use the desert tortoise as an example and go through some of its physical and behavioral adaptations. Each student will have the chance to design an original desert animal with adaptations that allow it to survive in its habitat.

They must answer the following questions regarding their animal and its adaptations. Where will the animal live? What will it eat? When is it active? How does it move? When they are completed you can either hang them in the room or send them up to Red Rock for the Rangers to enjoy.

Materials

crayons
pencils
paper
adaptation list / worksheet

Feeding Station Worksheet

Name_____

School_____

1. What was your adaptation? Circle one.

Clothespins

Large Chopsticks

Small Chopsticks

Fork

Spoon

Other

1. Sort the food items into the groups listed below and give your total for each.

Rope_____ Toothpicks_____ Beads_____

Glass_____ Eyes_____

- Was your adaptation better at collecting a particular food item?
- Did you change the way you used your adaptation during the activity? If so Why?
- Did you go after a certain type of food?

Those Amazing Adaptations Worksheet
Post-site

Name(s): _____

Your Animal: _____

Look closely at your animal. What features do you see that might help it survive in the desert?

What type of skin does it have and how might this help the animal?

What is the coloring? Any patterns? How could this help the animal?

Does it have a specialized tail? Why?

What do you think it eats and why?

When do you think it is active? And why?

Does your animal have any unusual adaptations?

Draw a picture of your animal

Adaptation Worksheet
Classroom
Pre Visit Activity

Name_____

School_____

How Do Humans.....

1. Obtain food and water in the desert?
2. Build a home?
3. Protect themselves or adjust to the heat?
4. Protect themselves from the sun?
5. Travel across the desert?

Go through each response and place an **A** if it is an adaptation, then a **B** for a behavioral or a **P** for a physical adaptation

Animal Adaptation Bingo

Coyote	Kangaroo Rat	Road Runner
Desert Tortoise	Bighorn Sheep	Rattlesnake
Common Poorwill	Burrowing Owl	Horned Lizard

Amazing Adaptations
Classroom Activity
Adaptation Bingo Clues

Grade Third

I am a desert insect that has long red wings and feeds off nectar. I sting tarantulas and lay my eggs in the paralyzed tarantula. My young feed of the tarantula until they emerge as adults.

I am one of the fastest desert animals, I have large ears and eyes that allow me to see and hear exceptionally well. My long ears also help me cool off. I get most of the water I need from eating plants.

I have many veins running under my belly and through my horns that help cool me off. I also have cloven hooves that allow me to grip onto rocky cliffs, my hooves allow me to jump down 20 feet onto another cliff edge.

I get all the water I need from plants, I also do not sweat and block up the entrance to my burrow to keep it cool. I have huge back feet and am able to jump 10 feet if something startles me. I am a small rodent

I have feet designed for digging and a special water bladder. I am a reptile and use burrows to get out of the sun.

I have a very special tail to let animals and people know when they are to close and making me feel uncomfortable. My markings allow me to blend in. I also have fangs and love to eat rodents.

I hunt primarily at dusk, dawn and at night. The color of my coat helps me blend in. I am about the size of a medium dog and love chasing cottontails.

I have hair under my feet that helps me run over soft sand and loose soils. I hunt small rodents, birds and the occasional scorpion. I have huge ears for cooling me off and listening for other animals.

I have long legs, a beak and feathers. I hunt insects and small animals during the day.